

IN THE CLAIMS:

Please amend the claims as follows:

- 1-23. (Canceled)
24. (Currently amended) An apparatus, comprising a cantilever structure including:
a substrate including a cantilever body that includes a doped layer; and
a substantially vertically aligned, with respect to a plane of the cantilever body, elongated
nanostructure coupled to the cantilever body,
wherein the substantially vertically aligned elongated nanostructure is directed out of the
plane of the substrate.
25. (Currently amended) The apparatus of claim 24, further comprising another substantially
vertically aligned nanostructure coupled to the cantilever body.
26. (Currently amended) The apparatus of claim 24, wherein there are no other
substantially vertically aligned nanostructures coupled to the cantilever body.
27. (Currently amended) The apparatus of claim 24, wherein the substantially vertically
aligned nanostructure is coupled to the cantilever body at a photolithographically defined
location.
28. (Currently amended) The apparatus of claim 24, wherein the substantially vertically
aligned nanostructure is located toward an end of the cantilever body and substantially on a
longitudinal center line of the cantilever body.
29. (Currently amended) The apparatus of claim 24, wherein the substantially vertically
aligned nanostructure includes a carbon nanofiber.
30. (Currently amended) The apparatus of claim 24, wherein the substantially vertically
aligned nanostructure includes a single wall carbon nanotube.

31. (Currently amended) The apparatus of claim 24, wherein the substantially vertically aligned nanostructure includes a multi-wall carbon nanotube.
32. (Currently amended) The apparatus of claim 24, wherein the substantially vertically aligned nanostructure includes an expanded base and a substantially cylindrical nanostructure coupled to the expanded base.
33. (Currently amended) The apparatus of claim 24, further comprising a nanostructure deactivating layer that substantially surrounds a portion of the substantially vertically aligned nanostructure.
34. (Original) The apparatus of claim 33, where in the nanostructure deactivating layer includes Si_3N_4 .
35. (Currently amended) The apparatus of claim 24, further comprising an electrically conducting layer coupled between the substantially vertically aligned nanostructure and the doped layer of the cantilever body.
36. (Currently amended) The apparatus of claim 35, wherein the electrically conducting layer includes an electrical interconnect to the substantially vertically aligned nanostructure.
37. (Original) The apparatus of claim 24, wherein the doped layer is degeneratively doped to a metallic state.
38. (Currently amended) The apparatus of claim 24, wherein the substantially vertically aligned nanostructure is hydrophobic.
39. (Currently amended) The apparatus of claim 24, wherein the substantially vertically aligned nanostructure is hydrophilic.
40. (Currently amended) The apparatus of claim 24, wherein a tip region of the substantially vertically aligned nanostructure is chemically modified.

41. (Original) A chemical force microscope tip comprising the apparatus of claim 24.
42. (Currently Amended) A chemical force microscope comprising the ~~scanning-probe~~ chemical force microscope tip of claim 41.
43. (Original) A scanning probe microscope tip comprising the apparatus of claim 24.
44. (Original) A scanning probe microscope comprising the scanning probe microscope tip of claim 43.
45. (Original) A magnetic force microscope tip comprising the apparatus of claim 24.
46. (Currently amended) A magnetic force microscope comprising the magnetic force ~~scanning-probe~~ microscope tip of claim 45.
- 47-70. (Canceled)
71. (Currently amended) An apparatus, comprising a cantilever structure including:
a substrate including a cantilever body; and
a substantially vertically aligned, with respect to a plane of the cantilever body, elongated nanostructure coupled to the cantilever body.
72. (Currently amended) The apparatus of claim 71, further comprising another substantially vertically aligned nanostructure coupled to the cantilever body.
73. (Currently amended) The apparatus of claim 71, wherein there are no other substantially vertically aligned nanostructures coupled to the cantilever body.
74. (Currently amended) The apparatus of claim 71, wherein the substantially vertically aligned nanostructure is coupled to the cantilever body at a photolithographically defined location.
75. (Currently amended) The apparatus of claim 71, wherein the substantially vertically

aligned nanostructure is located toward an end of the cantilever body and substantially on a longitudinal center line of the cantilever body.

76. (Currently amended) The apparatus of claim 71, wherein the substantially vertically aligned nanostructure includes a carbon nanofiber.

77. (Currently amended) The apparatus of claim 71, wherein the substantially vertically aligned nanostructure includes a single wall carbon nanotube.

78. (Currently amended) The apparatus of claim 71, wherein the substantially vertically aligned nanostructure includes a multi-wall carbon nanotube.

79. (Currently amended) The apparatus of claim 71, wherein the substantially vertically aligned nanostructure includes an expanded base and a substantially cylindrical nanostructure coupled to the expanded base.

80. (Currently amended) The apparatus of claim 71, further comprising a nanostructure deactivating layer that substantially surrounds a portion of the substantially vertically aligned nanostructure.

81. (Original) The apparatus of claim 80, where in the nanostructure deactivating layer includes Si_3N_4 .

82. (Currently amended) The apparatus of claim 71, further comprising an electrically conducting layer coupled between the substantially vertically aligned nanostructure and the cantilever body.

83. (Currently amended) The apparatus of claim 82, wherein the electrically conducting layer includes an electrical interconnect to the substantially vertically aligned nanostructure.

84. (Original) The apparatus of claim 71, wherein the cantilever body includes an etch stop layer.

85. (Canceled)

86. (Currently amended) The apparatus of claim 85 71, wherein the substrate includes a doped layer that is degeneratively doped to a metallic state.

87. (Currently amended) The apparatus of claim 71, wherein the substantially vertically aligned nanostructure is hydrophobic.

88. (Currently amended) The apparatus of claim 71, wherein the substantially vertically aligned nanostructure is hydrophilic.

89. (Currently amended) The apparatus of claim 71, wherein a tip region of the substantially vertically aligned nanostructure is chemically modified.

90. (Original) A chemical force microscope tip comprising the apparatus of claim 71.

91. (Currently amended) A chemical force microscope comprising the ~~scanning probe~~ chemical force microscope tip of claim 90.

92. (Original) A scanning probe microscope tip comprising the apparatus of claim 71.

93. (Original) A scanning probe microscope comprising the scanning probe microscope tip of claim 92.

94. (Original) A magnetic force microscope tip comprising the apparatus of claim 71.

95. (Currently amended) A magnetic force microscope comprising the ~~scanning probe~~ magnetic force microscope tip of claim 94.